



The Cloud at Crawford

*Evaluating the pros and cons of
cloud computing and its use in
claims management*

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Wikipedia defines **cloud computing** as “Internet-based computing, whereby shared resources, software and information are provided on-demand, like the electricity grid.” The term is sometimes used with “as a service” acronyms, such as SaaS (Software as a Service), IaaS (Infrastructure as a Service), PaaS (Platform as a Service) and others, to indicate what is delivered in a cloud, primarily software, infrastructure, data, storage and computing platform.¹

Other times, these terms are discounted as mere hype. But the reality is that cloud computing has introduced a different technical and economic model in delivering and managing information technology (IT), offering significant benefits in certain areas and shifting software and infrastructure delivery models. The concept is not new, but the latest advances in Internet technology and network and storage capacity have made it possible to realize significant economic value from this model. According to one source, organizations in the United States will spend more than \$13 billion on cloud computing and managed hosting services by 2014, as compared to \$3 billion today.

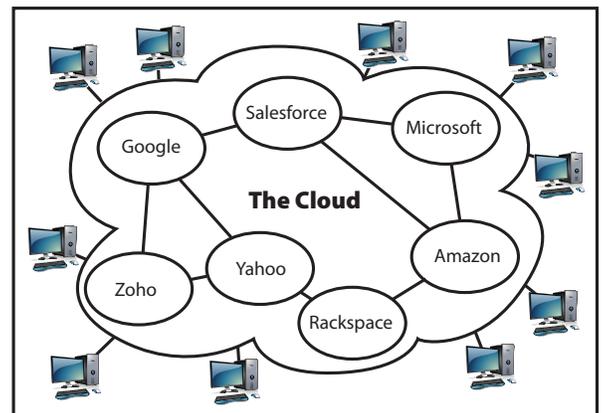
It is also important to note that cloud computing comes with its own risks and shortfalls, and understanding them is vital not only to IT organizations, but also to the businesses that rely on them.

This document outlines the benefits, risks and important considerations that should guide organizations trying to determine when and how to adopt the cloud model, based on our own experience with those questions and cloud computing at Crawford & Company.

Defining cloud computing

In the cloud computing model, a vendor owns hardware and software and “rents” them to a client on the basis of demand. The client pays only for the resources used, which can vary over time according to demand from the client. The vendor maintains the hardware and software. The same physical hardware is usually shared by multiple clients using virtualization technologies. Cloud solutions can be categorized into three types:

- Public – resources are available widely and hardware is highly shared among clients
- Private – implementation of cloud architecture on private networks for private use
- Hybrid – using a combination of multiple clouds of different types.



From the client perspective, the benefits of cloud solutions most often are:

- Shorter time to market
- Lower startup costs
- Scalability on demand
- High availability out of the gate
- Simplified maintenance
- Standard service level agreement (SLA) metrics for monitoring the service.

Cloud solutions also come with potential risks:

- Decreased level of control (or perception thereof)
- Uncertainty inherent in the cloud: ownership and location of data, security concerns
- Uncertainty about compliance, privacy and legal issues
- Difficulty in integration with in-house and other IT resources
- Potential for a lock into the vendor: little or no service portability.

Cloud computing can offer significant cost savings. Clients can avoid capital expenditures because hardware and software is provided as part of a service. Large upfront costs usually can be minimized by

renting at a small scale in the beginning and scaling up if and when required. This also significantly lowers the barrier to entry, which makes a major difference for the assumptions used for strategic decision making.

Cloud's system-wide efficiencies are gained by utilizing hardware (CPU, memory, network) more efficiently through virtualization. In the traditional model in which the client owns all hardware assets, hardware is sized to handle peak load, and thus sits underutilized for a majority of the time. Additional efficiencies are gained by economies of scale; in a cloud, thousands of servers and storage arrays are managed together in an automated and highly optimized manner, including backups, disaster recovery, fault resolution and upgrades. Cloud computing becomes attractive when a significant portion of such economic advantages is transferred to clients as cost savings. However, overall operating expenses still may be higher, and those contemplating cloud technology need to evaluate their own situations on a case-by-case basis.



Deciding when to use the cloud

In addition to economic considerations, businesses need to review a number of other factors to determine whether to use a cloud solution for a specific need. Any choice of technology should maximize benefits and minimize potential risks. In the case of cloud computing, clients need to ask themselves the following questions before adopting this new model.

Is my application a strategic one?

Strategic applications, such as claim administration systems in Crawford's business, are critical to operations. Extra caution should be taken when considering a cloud approach due to the significant risks associated with a decreased level of control, uncertainty inherent in data ownership and security, difficulty in integration, and vendor lock-in. Unless all these risks are absolutely mitigated, strategic applications should not be moved to cloud technology.

Is my application a supporting one?

Supporting applications are usually candidates for cloud computing provided that it offers an economic advantage and procedures can be put in place to mitigate any risks of the cloud model. For example, many small to medium-size companies rely on cloud-based human resources (HR) solutions. Big customer relationship management (CRM) and enterprise resource planning (ERP) application providers such as Oracle and Microsoft provide cloud-based services. Many organizations, including Crawford, already successfully use salesforce.com CRM.

Is my application a commodity?

Much like the need for electricity and water to run a business, commodity applications such as email and collaboration tools are critical to operations, but are not strategic and do not give strategic advantage. Commodity applications may be considered for cloud technology when strategic applications do not heavily depend on them and an economic benefit for moving them to a cloud exists.

Are my applications highly customized or integrated with others?

Because of integration and portability difficulties characteristic to the cloud model, systems and applications that require heavy integration and are extensively customized are usually not good candidates for cloud technology.

How much do I depend on my IT infrastructure?

Virtual storage and servers have been popular cloud offerings because it is easier to derive return on investment for virtualized infrastructure than for applications. In addition, switching costs are lower. As with commodity applications, cloud infrastructure services may be considered for servers and storage units that strategic applications do not depend on and when the economic benefits justify their use. For example, server and storage environments for software development and testing are usually good candidates for the cloud model.

Is my data sensitive?

In the increasingly regulated environment of data privacy, storing sensitive data in the cloud presents challenges to accountability. Sometimes this risk is mitigated by including contract clauses with a cloud vendor to transfer the financial risk of data breaches to the vendor, but this does not completely clear a client of the outcomes of a data breach, such as harm to reputation. Since critical data usually requires tight control, it typically is better suited for storage using the traditional in-house model.

Is my business international?

Data transfer between nations can be a critical issue for any business operating in more than one country. Some cloud implementations do provide the ability to define safe zones, explicitly setting constraints on where data is stored and transmitted. This functionality is mandatory for any service provided by a cloud vendor that may move data and processes in and out of the country. In addition, businesses with international operations need to know:

- Are a vendor and its technology available in the countries in which the service is going to be needed?
- Are all required languages, currencies, date formats and other necessary localizations of data supported?
- Are all regulatory differences between the countries and states involved taken into account?

How much innovation do we do?

One of the most suitable uses for cloud services is during the innovation process. Because innovation happens in many places in parallel and requires many relatively short-lived server environments for proofs of concept, it is usually economically advantageous to allocate virtual environments in cloud as needed. Risks associated with this are usually minimal, as daily operations do not depend on proofs of concept. However, an internal cloud may be used for this just as effectively as an external cloud; these two options ought to be compared in specific cases.

Evaluating cloud vendors

The number of cloud offerings and vendors is growing very fast, but several of them stand out as the major players in the field. This list is by no means definitive, but among the most notable are:

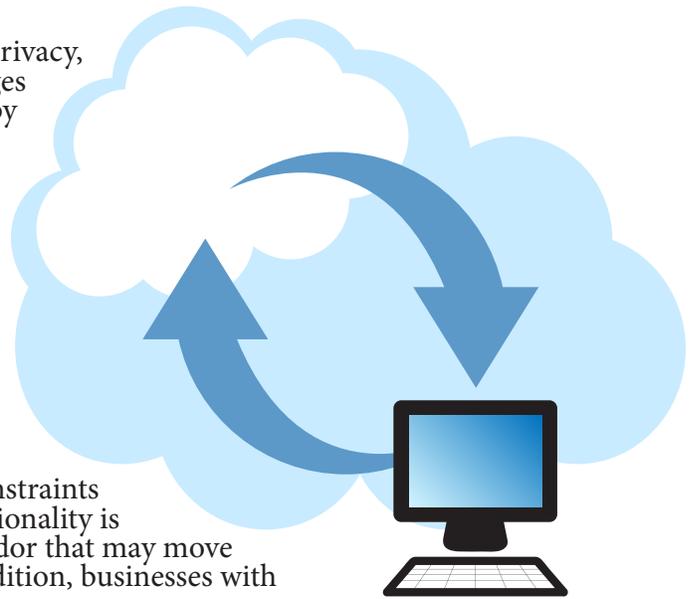
Amazon is a pioneer of infrastructure services in cloud. The best known is Amazon Elastic Compute Cloud, or Amazon EC2, which allows customers to set up and access virtual servers via a simple Web interface. EC2 is designed to work in conjunction with other cloud services, including Amazon Simple Storage Service (S3), Simple DB, Cloudfront, Simple Queue Service (SQS) and Elastic MapReduce.

Google provides multiple applications in cloud, including Gmail™, Google Docs™, Google Calendar™, Google Sites™, Google Gadgets™, Google Videos™ and Google Apps Engine™. The Apps Engine allows developers to write applications to run on Google's servers while accessing data that resides in the Google Cloud as well as data that resides behind the corporate firewall.

Salesforce.com's Sales Cloud and Service Cloud solutions for customer relationship management have helped make it one of the most well-known and most successful cloud computing companies. The Force.com allows development and deployment of custom applications on the company's cloud platform.

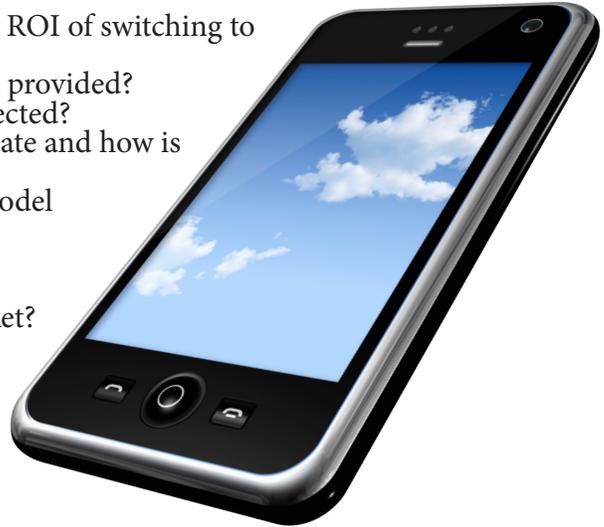
Microsoft® Windows Azure™ provides platform, Windows®, SQL database and application services in cloud that integrate with Office product and Microsoft development tools. Many Microsoft products are now offered in cloud, including Office, Exchange email, SharePoint® and Dynamics CRM.

IBM is a latecomer to cloud computing, but is heavily investing in its Smart Business lineup of cloud-based products and services, focused software development, testing and virtual desktops.



When evaluating external cloud offerings, points a business should consider include:

- Cost/benefit analysis: what are the financial benefits or ROI of switching to the cloud model?
- Security: what procedural and technical safeguards are provided?
- Data ownership: who owns the data and how is it protected?
- Data privacy: from which country does the data originate and how is data privacy provided?
- Latency: is network latency introduced by the cloud model acceptable?
- Customization: does the application require heavy customization?
- Time to market: can we achieve a shorter time to market?
- Business readiness: are we ready for and comfortable with the cloud model?
- Exit strategy: what is our exit strategy in case we need to change vendors or move applications back in-house?



Using the cloud at Crawford

Crawford has done its own evaluation of the benefits and risks of cloud computing; among the company's IT products and applications employing cloud models are:

- CMS v3.0, a Web-based property and casualty claims adjusting application;
- ClaimHub, a workflow solution for property and casualty claims;
- RiskTechSM Web, a Web-based adjusting system for workers compensation claims used by the company's Broadspire unit;
- e-Triage, an application used to analyze issues in workers compensation and disability claims by Broadspire;
- DmitriSM, a risk management information system suite of products offered by Risk Sciences Group;
- KMC On DemandSM, a leading provider of online education for insurance claims adjusters.

In three to five years, we expect to rely more heavily on cloud services for supporting applications such as HR, CRM and ERP; commodity applications such as collaboration and social media; infrastructure services; projects involving innovation; and proofs of concept. We also expect our own cloud offerings to grow in the area of business intelligence and claim self-administration.

However, we expect strategic claim administration applications and those involving heavy integration, customization and highly sensitive data generally to remain in-house, using traditional models.

Making the best decision for your business

Because of its many advantages – particularly economic ones – cloud computing is here to stay, IT analysts, professionals and organizations agree. Businesses can either turn a blind eye to it or embrace and take advantage of it for software and services they acquire, use and provide. But risks also are present in cloud technology. Defining a cloud strategy in a global context and then determining whether a specific situation presents an opportunity to capitalize on the technology is key to successful adoption of cloud computing.

¹ The Open Cloud Manifesto, a six-page document with a set of cloud principles endorsed by hundreds of vendors, also defines the “whats” and “whys” quite well and is available at www.openCloudmanifesto.org/.

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Based in Atlanta, Ga., Crawford & Company (www.crawfordandcompany.com) is the world's largest independent provider of claims management solutions to the risk management and insurance industry as well as self-insured entities, with an expansive global network serving clients in more than 70 countries. The Crawford System of Claims SolutionsSM offers comprehensive, integrated claims services, business process outsourcing and consulting services for major product lines including property and casualty claims management, workers compensation claims and medical management, and legal settlement administration. The Company's shares are traded on the NYSE under the symbols CRDA and CRDB.

The Crawford System of Claims SolutionsSM
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